

<b>Notice of Allowability</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/752,276	BELCEA, JOHN	
	Examiner Ayal I. Sharon	Art Unit 2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1.  This communication is responsive to Appeal Brief filed 2/8/2006.
2.  The allowed claim(s) is/are 1-18, 20-40 and 42-45.
3.  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a)  All
  - b)  Some\*
  - c)  None
  1.  Certified copies of the priority documents have been received.
  2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3.  Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4.  A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5.  CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a)  including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1)  hereto or 2)  to Paper No./Mail Date \_\_\_\_\_.
  - (b)  including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date 6/16/2004.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6.  DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

#### Attachment(s)

1.  Notice of References Cited (PTO-892)
2.  Notice of Draftsperson's Patent Drawing Review (PTO-948)
3.  Information Disclosure Statements (PTO-1449 or PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4.  Examiner's Comment Regarding Requirement for Deposit  
of Biological Material
5.  Notice of Informal Patent Application (PTO-152)
6.  Interview Summary (PTO-413),  
Paper No./Mail Date 4/24/06.
7.  Examiner's Amendment/Comment
8.  Examiner's Statement of Reasons for Allowance
9.  Other \_\_\_\_\_.

## **DETAILED ACTION**

### ***Introduction***

1. Claims 1-18, 20-40, and 42-45 of U.S. Application 09/752,276, are currently pending. The application was originally filed on 12/29/2000.

### ***Objection to Drawings***

2. This application has been filed with informal drawings filed on 12/29/2000, which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.

### ***Objections to Specification***

3. In the Appeal Brief filed 2/8/2006 (see pp.32-36), the Applicant argues that the amendments to the specification filed 11/16/2004 were made to correct an obvious error, which one skilled in the art would not only recognize the error, but also the appropriate correction, and therefore does not constitute new matter.

See *In re Oda*, 443 F.2d 1200, 170 USPQ 268 (CCPA 1971).

4. Examiner has found Applicant's arguments to be persuasive, and has withdrawn the objections to the specification.

***Claim Rejections - 35 USC § 101***

5. In light of the amendment to the specification filed 11/16/2004, which has now been entered, the claimed formulas are no longer inoperable. Therefore, Examiner has withdrawn the 35 U.S.C. § 101 rejections of claims 4-5, 14, 26-27, 36, and 45.

***Examiner's Statement of Reasons for Allowance***

6. Claims 1-18, 20-40, and 42-45 are allowed.
7. The following is an examiner's statement of reasons for allowance for claims 1-18, 20-40, and 42-45.
  8. The prior art referred to in this Reasons for Allowance is as follows:
    - Gruber, P. et al., "Suboptimal Control Strategies for Multilocomotive Powered Trains". IEEE Transactions on Automatic Control. June 1982. Vol.27, Issue 3, pp.536-546. (Henceforth referred to as "Gruber").
  9. In regards to independent claim 1, Gruber teaches the following limitations:

*1: A method for predicting train consist reactions to specific stimuli using a system including at least one measurement sensor located on a train consist, a data base, and a computer, the train consist including at least one locomotive and at least one railcar, said method comprising the steps of:*

*collecting sensor data as the consist is moving;*

**(Gruber, especially: Section I, "Introduction", col.1 last paragraph – col.2, first paragraph)**

**Gruber teaches in the cited paragraph that:**

**"The control strategies developed in this paper are based on the assumptions that electro-pneumatic brakes are available and that there exists an exchange of information along the train [2]. The objective of the control is to minimize the coupler forces which results in safer operation or in increased traveling speeds."**

*determining a consist force balance utilizing the sensor data and the computer;*

**(Gruber, especially: Abstract, and Section II "Model")**

**Gruber teaches the following in the abstract:**

**"This paper introduces two different controllers for the handling of very long multi-powered trains, including braking operations. The purpose of the controller is to minimize coupler forces and velocity deviations from reference values due to grade changes and other disturbances."**

**Gruber teaches the following in Section II:**

**"If  $v$  represents the actual velocity vector and  $u$  the actual input vector consisting of throttling and braking forces, then the deviations from nominal values are defined by**

$$\delta v = v - {}^0v \text{ and } \delta u = u - {}^0u$$

**The nominal velocity  ${}^0v$  is maintained by  ${}^0u$ , which is equal to the resistance and gravity forces"**

*determining a set of consist coefficients using the computer; and*

**(Gruber, especially: Abstract, and Section II "Model")**

**Examiner finds that the "actual velocity vector" and "actual input vector ... of throttling and braking forces" corresponds to the claimed "coefficients".**

*predicting train consist kinetic characteristic values using the consist force balance and the set of consist coefficients*

**(Gruber, especially: Abstract, and Section II "Model")**

**Examiner finds that the model described in detail in Section II predicts train consist kinetic characteristics.**

Gruber, on the other hand, does not expressly teach the following limitations Independent claim 1 recites the following limitations:

including: determining an acceleration prediction;

determining a speed after one minute prediction using the acceleration prediction; and

determining a shortest braking distance prediction using the acceleration prediction.

In particular, Gruber does not expressly teach the limitation of “one minute prediction” in the limitation “determining a speed after one minute prediction using the acceleration prediction”.

10. Dependent claims 2-18 and 20-22 depend from allowable independent claim 1, and therefore are also allowable.
11. Independent claim 23 is allowable based on the same reasons as claim 1. Claim 23 is a system claim that recites limitations equivalent to those recited in claim 1.
12. Dependent claims 24-40 and 42-44 are allowable because they depend from allowable independent claim 23.
13. Claim 45 is allowable because Gruber does not expressly teach the “brake application dragging force” equations as recited in the claim, nor does Gruber expressly teach the “brake release using a fast release model” equation or the “brake release using a slow release model” equation.
14. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should

preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Correspondence Information***

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ayal I. Sharon whose telephone number is (571) 272-3714. The examiner can normally be reached on Monday through Thursday, and the first Friday of a biweek, 8:30 am – 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached at (571) 272-3753.

Any response to this office action should be faxed to (571) 273-8300, or mailed to:

USPTO  
P.O. Box 1450  
Alexandria, VA 22313-1450

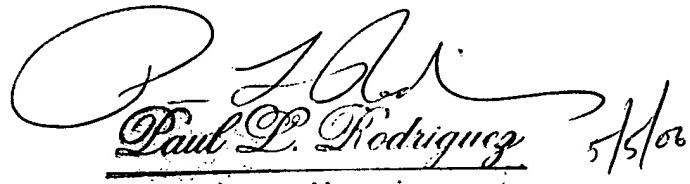
Art Unit: 2123

or hand carried to:

USPTO  
Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Tech Center 2100 Receptionist, whose telephone number is (571) 272-2100.

Ayal I. Sharon  
Art Unit 2123  
May 3, 2006

  
Paul L. Rodriguez 5/5/06  
Primary Examiner  
Art Unit 2123